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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,764	10/22/2001	Kohji Kanamori	N32565600	5751

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EXAMINER

FOURSON III, GEORGE R

ART UNIT PAPER NUMBER

2823

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,764

Applicant(s)

KANAMORI, KOHJI

Examiner

George Fourson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

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Applicant's election with traverse of the invention of Group 2 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that there is no serious burden as evidenced by the classification of both groups in the same subclasses and that the materially different process could not make the device or could not be performed. This is not found persuasive because the device could be made by another materially different process such as one which does not include removing a portion of the second oxide film. Also, the method of claims 8-20 is classified in 438/296 thus evidencing serious burden in searching relevant subclasses for the two inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claims 8-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, line 8, it appears that - - said - - should precede "stacked". In claim 14, line 3, it is questioned what is recited through use of "stopper layer". In claim 14, line 13, there is no antecedent basis for "mask patterns". In claim 18, it is questioned what is recited through use of "matches".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8,9,12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bois, Japanese Patent 62-216268 and Kwon.

Bois discloses formation of LOCOS mask 4, exemplifying silicon nitride, local oxidation of the substrate to produce a LOCOS film 8, etching of 8 using mask 4 to form trench 10, filling of trench 10 with dielectric 14 and planarization of dielectric 14 to the level of LOCOS film 8. The reference does not disclose use of a conductive layer in the LOCOS mask or the use of sidewalls on mask 4 to etch trench 10.

Japan '268 discloses LOCOS using a nitride 4/conductive film 3/oxide film 2. It would have been within the scope of one of ordinary skill in the art to combine the teachings of Bois and Japan '268 to enable formation of the LOCOS mask of Bois.

Kwon discloses formation of trench 8 through LOCOS film 5A by formation of sidewalls 6A on LOCOS mask nitride 4/polysilicon 3/oxide 2 (fig.1A-1C). It would have been within the scope of one of ordinary skill in the art to combine the teachings of Bois and Kwon to enable formation of trench 10 of Bois.

Choice of particular thickness of the LOCOS film would have been within the scope of one of ordinary skill in the art as a matter of routine optimization.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bois, Japanese Patent 62-216268 and Kwon as applied to claims 8,9,12 and 13 above, and further in view of Lai.

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The combination does not include forming a dielectric on the conductive layer or another conductor layer on the dielectric layer. Lai discloses forming an EEPROM which includes forming an insulator on a polysilicon layer and a further polysilicon layer. It would have been within the scope of one of ordinary skill in the art to combine the teachings of the combination and those of Lai to enable EEPROM formation.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bois, Japanese Patent 62-216268 and Kwon as applied to claims 8,9,12 and 13 above, and further in view of the following comments.

The combination does not include forming the sidewalls using nitride. The examiner takes official notice that formation of nitride spacers as part of a hard mask was known prior to applicant's invention. It would have been within the scope of one of ordinary skill in the art to combine the known process with that of the combination to enable formation of the mask used to etch the LOCOS film.

Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bois.

Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bois as applied to claims 14 and 15 above, and further in view of Lai.

Bois discloses removal of the LOCOS mask and formation of MOS IC devices including transistors (col.1, lines 7-15). The reference does not disclose formation of a gate oxide and a gate on the substrate between the LOCOS films and overlapping a portion of the films.

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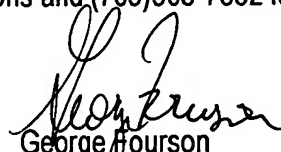
Lai teaches provision of an EEPROM between and overlapping LOCOS regions (fig.5). It would have been within the scope of one of ordinary skill in the art to combine the teachings of Bois and Lai to enable EEPROM formation as the device formation step of Bois.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956. See MPEP 203.08.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner George Fourson whose telephone number is (703) 308-2544. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794. The fax number for this group is (703)308-7722 (or extensions 7724, 3431 or 3432) for regular communications and (703)308-7382 for after final communications.


George Fourson
Primary Examiner
Art Unit 2823

GFourson
October 29, 2002